

Planning and Quality Assurance Affairs

Form (A)

Course Specifications

General Information

Course name	Introduction to Engineering
Course number	ITME1101
Faculty	
Department	
Course type	Major Needs
Course level	1
Credit hours (theoretical)	1
Credit hours (practical)	0
Course Prerequisites	

Course Objectives

- 1 - Introducing engineering and an engineer definitions and success factors
- 2 - Allowing students to select field of speciality based on knowledge of various engineering fields and career potentials
- 3 - Introducing numbers, significant digits and confidence in measurements and calculations
- 4 - Empowering students to perform conversions and calculations in different measurement units systems
- 5 - Giving students efficient problem solving techniques
- 6 - Introducing the engineering design method
- 7 - Introducing creative idea generation and evaluation methods
- 8 - Introducing technical report writing and oral presentation skills

Intended Learning Outcomes

Knowledge and Understanding	<ul style="list-style-type: none">* a1) Knowledge of engineering definition and key factors to succeed at university* a2) Knowledge of differences between various engineering fields* a3) Ability to handle number correctly and accurately* a4) Ability to solve problems with quantities from different systems of units* a5) Ability to apply numerical and symbolic solutions of problems* a6) Knowledge of the engineering method toward suggesting solutions* a7) Ability to generate creative ideas to solve simple engineering problems* a8) Knowledge of the importance of communication skills in engineering
Intellectual Skills	<ul style="list-style-type: none">* b1) Ability to plan a career based on knowledge* b2) Ability to think analytically and detailed-oriented* b3) Ability to determine engineering system parts and components* b4) Ability to visualise design details* b5) Ability to generate creative solutions
Professional Skills	<ul style="list-style-type: none">* c1) Ability to determine the field of engineering needed to solve a certain problem* c2) Ability to handle numbers correctly and accurately* c3) Ability to convert among the different systems of units* c4) Ability to generate creative ideas* c5) Ability to manage-time and resources
General Skill	<ul style="list-style-type: none">* d1) Reading books and essays* d2) Writing technical reports and homework* d3) Punctuality and time-management skills

Course Contents

1 - Introduction to engineering definitions and success factors
2 - Engineering fields and careers
3 - Significant digits and errors in calculations
4 - Dimensions, measurement systems and conversions
5 - Numerical and symbolic solving techniques
6 - Engineering design method
7 - Creative ideas generation and evaluation methods
8 - Engineering communication skills

Teaching and Learning Methods

1 - Lectures
2 - Further readings

Students Assessment

<u>Assessment Method</u>	<u>TIME</u>	<u>MARKS</u>
Mid-term exam	Middle of semester	30
Attendance and discussion	Throughout semester	5
Homework and reports	Throughout semester	15
Final exam	End of semester	50

Books and References

Course note	Introduction to Engineering, Lecture Notes and Slides, by: Dr. Ahmed Issa, Al Azhar University – Gaza
Essential books	Engineering Fundamentals: An Introduction to Engineering, Saeed Moaveni, 4th edition, Cengage Learning
Recommended books	Introduction to Engineering, Paul H. Wright, 3rd edition, John Wiley & Sons, Inc

Knowledge and Skills Matrix

Main Course Contents	Study Week	Knowledge and Understanding	Intellectual Skills	Professional Skills	General Skill
Introduction to engineering definitions	1	a1	b1	c1	d1
Engineering fields and careers	2-3	a2	b1, b2, b3	c1	d1, d2
Significant digits and errors in calculations	4-5	a3	b2	c2	d1
Dimensions, measurement systems and conversions	6-7	a4	b3	c2, c3	d1
Numerical and symbolic solving techniques	8	a5	b2	c2, c3	d1
Engineering design method	9-12	a6	b2, b3, b4	c1	d1, d3
Creative ideas generation and evaluation methods	13-14	a7	b2, b3, b4, b5	c1, c4	d1
Engineering communication skills	15	a8	b2	c5	d1, d2, d3